HILKE ELSEN

SOME PROPER NAMES ARE MORE EQUAL THAN OTHERS
The sound symbolic value of new names

RESUME – Cet article traite de la valeur symbolique des sons des nouveaux noms propres. Après avoir précisé la signification des termes clés, il présente un test portant sur l'interprétation des noms de médicaments ainsi qu'une expérience effectuée sur des noms de créatures fantastiques. Il montre enfin que certains noms "sonnent" mieux que d'autres, les créateurs de ces noms tentant de livrer des informations par le biais de leur structure phonologique.

MOTS-CLES – Noms littéraires, noms artificiels, symbolique phonétique

ABSTRACT – This paper is about the sound symbolic value of new names. After discussing the relevant terms and problems concerning the present state of definitions, a test on the interpretation of names of drugs is outlined, followed by an experiment with names for fantastic creatures. As will be shown, some names are better than others, and possible explanations are offered. Name creators do not build their names arbitrarily but try to deliver
information via sound structure.

KEY-WORDS – Literary names, artificial names, sound symbolism.

Introduction
Questions concerning sound symbolism are usually not tackled by modern linguists, probably because of the dominance of Western European and US-American research and de Saussure's conclusion that the relation between form and meaning of the linguistic sign is arbitrary – except for just a few onomatopoetic terms such as *cuckoo*. Unfortunately, thoughts about sound symbolism often turned out to be impressionistic and subjective, cf. Arthur Rimbaud (1854–1891): "A noir, E blanc, I rouge, U vert, O bleu, voyelles", leading to disapproval and refusal to seriously study topics related to sound symbolism. As for today, the real amount of sound symbolic lexemes in contemporary language systems is unknown. However, at least for German, there are certain domains of language where we do find quite a lot of sound symbolic words: names for products and names for fantastic creatures.

1. Terminology
1.1. *Names*
Names (i.e., proper names) are special nouns as they may differ concerning morphology, phonology, orthography and semantics. According to common view, in contrast to other nouns they do not have meanings, but they refer. Names designate objects of classes with a particular individuality. This might be a single object or a group as a whole, like a people (Hansack 2004: 56ff.). However, as this article concentrates on form, we will not pursue the question of meaning any further.

Traditionally, research deals with genuine names. In this article, however, the names are different because first, they are literary names, that is, names in stories. Second, they are artificial names. Most of them are constructed by the authors – but are they, though built artificially, arbitrary?

1.2. *Sound symbolism*

Sound symbolism means that units of sound may carry features of meaning. Unfortunately, a fixed and generally accepted specification of the term is missing. Several definitions were offered which vary between rather lax and extremely strict ones, between a feeling for an appropriate meaning (Lyons 1977) and a definite correlation of speech sound with an object (Reay 1994). Sometimes, the relationship between form and content is addressed as a natural and/or similarity association (Jakobson and Waugh 1987), or, in contrast, a habitual one (Anderson 1998) - this refers to units such as phonesthemes (*gl* in *glitter, glimmer*). Nuckolls formulates generously and avoids pinning down the lexical scope or the nature of the association between sound and meaning when using sound symbolism for "a sound unit such as a phoneme, syllable, feature, or tone […] to directly express some kind of meaning" (Nuckolls 1999: 228). But while avoiding specifying the relationship, she leaves us in the dark about the way sound symbolism might work and avoids an unambiguous definition. We still do not know how "natural" the relationship has to be, and there is a serious difference between the attributes *natural* and *habitual*. A natural relationship is, *inter alia*, based on similarity or iconicity, cf. *crash!*. In contrast, a habitual association can be obtained over time in the course of language acquisition. In fact, any association can be learned. All morphemes are acquired pairings of a form and a meaning.

2. State of the Art
2.1 *Artificial words*

Every now and again various specialists tried to determine the extent, scope and possible causes for sound symbolism. One of the first experiments trying to show sound symbolic effects was Köhler's study (1929) with shapes and words. People had to assign two artificial words, *maluma* and *takete*, to the drawings in Fig. 1.
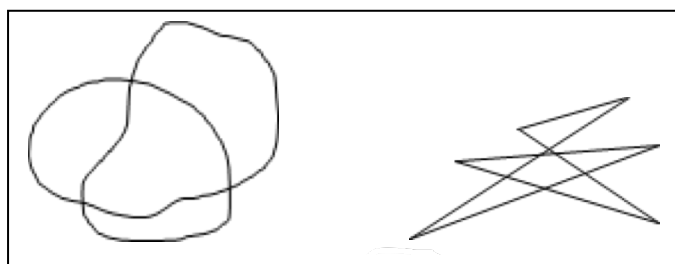

Figure 1.   Maluma and Takete (Köhler 1947)

This study was repeated again and again with speakers of various languages and different ages, always leading to an extremely high mapping between *takete* and the spiky shape and *maluma* and the rounded one, resp. (e.g., Bremner et al. 2013; Imai et al. 2015).

Sapir (1929) developed another famous study. His subjects were offered 60

pairs of artificial words such as *mil*/*mal*. They were told that these were names for referents, e.g. a table. Then they had to decide whether they referred to a small or a large one. Again, results were extremely clear as the vast majority paired large objects with words containing *a* (up to 96 %), small objects with words containing *i*.

Shinohara and Kawahara's (2010) participants were native speakers of Korean, Chinese, Japanese or English. As stimuli doubled VC-syllables with *b, d, g, z – p, t, k, s* and *i, u, e, o, a* were used. High and front vowels and voiceless consonants correlated positively with small size etc.

The study of Thompson and Estes (2011) operated with systematically constructed artificial words containing "large" and "small" sounds/letters according to published results (*a, u, o, m, l, w, b, d, g* : large, *i, e, t, k* : small). The stimuli consisted of CV-syllables with no, two, four or six "large" sound/letters and six, four, two or no "small" ones such as *wodolo* (exclusively "large" sounds) or *tibudo* (four "large" sounds, two "small" sounds). The relevant referents were fantasy characters of different sizes. Subjects had to indicate the best fitting stimulus for a given character. The authors found that the larger the size of the referent, the higher the number of "large" sounds in the word: mappings matched linearly according to size.

Lupyan and Casasanto (2015) wanted to know whether nonce words activate shape information in speakers. Their subjects were asked to describe aliens and to choose attributes from a list with 19 possibilities. An alien with a name like a "foove" turned out to be large and fat, a "crelch" was systematically described as narrow and pointy. Experiments like these, which use artificial words consistently, reliably prove the existence of sound symbolic effects.

2.2 **Language systems**

Another alternative in search for sound symbolic effects is founded upon actual vocabulary. Lexemes of one or several languages are collected and compared to examine whether certain aspects of content correlate with sounds. Here, results turn out to be less robust.

When analyzing lexemes from different language families, Murdock (1959) as well as Jakobson (1971) found predominantly front nasals in words for mother, mainly *m*. In words for father, both found a tendency for using front oral consonants, preferably bilabials. Other consonants were definitely less frequent (further studies cf. Wescott 1980, Crystal 1996). Another example is the high correlation between /ŋ-/ and meanings having to do with mouth or nose in Austronesian languages, cf. *ŋiŋis* 'grin, show the teeth' in Kadazan or *ŋafŋaf* 'eat grass as a cow does' in Amis (Blust 2003). In some languages like Makasarese more than 41 % of words with initial /ŋ-/ show an oral or nasal association (Blust 2003: 193f.).

One of the most frequent correlations studied – and found – is that between high front vowels and smallness and *a*/*o*-sounds and large size, as we already saw in experiments with artificial words. Early investigations looking for sound symbolic traces in Indo-Germanic and Non-Indo-Germanic languages concentrated on the relation between high vowels and small size (Paget 1930; Heise 1966; Bloomfield 1909, 1910; Johnson 1967). Ultan (1978) looked for universal correlations between sounds and concepts of size. He analyzed 136 languages and concentrated on

diminutives but did not come up with convincing results, though distribution was not accidental. There was a slight tendency of high front vowels referring to smallness, which was not statistically relevant. However, an important result was that no contradictory correlations could be found, so that arbitrary sound-meaning-pairings were to be excluded. Further studies demonstrated magnitude symbolism (*i, e*: 'small', *a, o*: 'large') for various languages such as Chinese, Danish, French, German, Japanese and Thai (cf. Jespersen 1933; Thorndike 1945; Chastaing 1962, 1964, 1965; Ertel 1969; Fischer- Jørgensen 1978; Peterfalvi 1965; Peterfalvi 1970; Huang et al. 1969; Klank et al. 1971, Shinohara and Kawahara 2010).

A related concept is distance. Obviously, 'small' and 'small distance/near' correspond, as well as 'big' and 'far away'. Here, results are clear. Pronouns, adverbs or affixes expressing nearness favour sounds like *i*, words for distance use *a* or *u*, cf. Fr. *ici – là*, Ger. *hier – da* (Tanz 1971; Traunmüller 1996; Crystal 2010; Woodworth 1991; Tsur 2006; Ultan 1978).

Critics admit that, whereas on first sight, languages seem to prefer high vowels such as *i* for encoding smallness and *a*-sounds for encoding opposing characteristics like 'large, huge, heavy', cf. *tiny, little, mini, tall, large*, counterexamples are easily found, cf. *small/big*, and exact numbers and percentages of lexemes with and without these pairings are not known. However, early studies and estimates regularly indicate magnitude symbolism in nearly all languages.

Sound symbolic effects can be demonstrated in all experiments for speakers of all languages. It plays a facilitating role in language processing and acquisition (Imai et al. 2008, 2015, Kantartzis et al. 2011, Laing 2014, Elsen 2017). However, whereas Indo-Germanic systems possess few sound symbolic words, which is the reason behind Saussure's dictum of the arbitrariness of the linguistic sign, other languages are characterized by an extensive use of sound symbolic lexemes. For individual analyses of Non-Indo-Germanic languages reveal even much more sound symbolic lexemes than in Indo-Germanic, cf. Basque (Ibarretxe-Antuñano 2006), Turkish (Jendraschek 2002), Tamil (Yoshida 2012), Japanese or Korean (Kim 1977; Ivanova 2006; Akita 2011; Kantartzis et al. 2011; Akita 2013). Japanese dictionaries list around 4.500 sound symbolic words (Imai and Kita 2014; Oszmiańska 2001).

However, present lexical systems are no convincing source for the study of sound symbolic effects. All vocabularies are extensive. Though sound symbolic words are easy to acquire and to manage, social and technical development results in more and more concepts. More concepts require more words. Growing vocabularies need more contrast between lexical items otherwise, precise communication is endangered due to too many homonyms, ambiguities and misunderstandings. Large vocabularies depend on arbitrariness. Arbitrariness is necessary. Consequently, present lexical systems constitute no valid basis when looking for sound symbolism. All the same, we do find traces everywhere; in fact, all vocabularies use a mix of arbitrary and iconic units.

What is more, when language analyses and experiments with artificial words are combined, we face an astonishing finding: Slavic languages very often use lexemes with *a* for small things, but in experiments with artificial words Russian and Ukrainian speakers judge *a* to be 'big', *i* to be 'small' (Levickij 2013: 87). The same was found for Korean speaking subjects (Shinohara and Kawahara 2010).

Sound symbolism exists, but it may be latent without being active all the time. Magnitude symbolism seems to be psycholinguistically real, independent of language and sound systems.

In general, languages in Europe do not show many sound symbolic words. The vast majority of linguistic signs are surely arbitrary. The usual exceptions are occasional onomatopoetics. However, some vocabularies come up with high percentages. But exact counts depend on the definition of what is sound symbolic, a question which is, as already mentioned, not yet answered. And this is, in fact, the problem: Some people argue for some natural relationship, for others, the basis is statistical knowledge.

Let us now look at two areas where we can find an active use of sound symbolic names.

3. Creation of new names
3.1. *Names for medicines*
Wehking (1984) wanted to know more about the effects of names for drugs and medicines. He thought that the sound structure of product names might show a psychological dimension as it does not remain neutral, but causes sympathy or antipathy. To study how medical names influence consumers' attitudes, he created 15 names such as *Fortral, Biklin, Dilcoran 80, Zeel, Nuran BC forte, I.R.S. 19.* Subjects, 50 males between 19 and 26 years of age, were given questionnaires. To begin with, they had to decide for which kind of products these names might be used: food, cosmetics, plastics, medicines or household products. Except for one person, who settled for cosmetics, all people chose medicines. Other questions were, e.g., "Imagine you are seriously ill. Your physician prescribes one of these medicines for you. Which ones are powerful, which might be unhealthy, which might be expensive?" Subjects judged *Dilcoran 80* (20)[1], *Percoffedrinol, Nuran BC forte* (16), *Fortral, I.R.S. 19* (15) to be strong. Weak were *Zeel, Solgol, Traumeel* (15). New, modern were *I.R.S. 19* (41), *Dilcoran 8*0 (33), *Nuran BC forte* (27). Older were *Zeel, Tavor* (23), *Talusin* (19). Expensive were *Dilcoran 80* (26), *I.R.S. 19* (21) and possibly injurious to health were *I.R.S. 19, Percoffedrinol* (18), *Dilcoran* 80 (16).

Obviously, there is a relationship between the name of a product and assessing it as effective, unhealthy and expensive (Wehking 1984: 89). Effective were products with numbers and letter combinations in their names. The same can be said for unhealthy and expensive medicines. There is a connection between name structure and properties of the product. Artificial names carry information via sound structure (and/or orthography). However, a natural relationship between form and meaning is not discussed.

3.2. *Names for fantastic creatures in SF and Fantasy*
Another area where we can find sound symbolic effects of names is science fiction and fantasy. In a study about the motivation of fantastic names, names of plants, buildings, countries, planets, various creatures etc. were collected (Elsen 2008).

---

[1] Number of subjects who chose the word.

Data were names from 52 books, written in German by German authors. As a result, anthroponyms such as *Brin*[2]*, Tik, Elim, Schti* were found for small, good beings, very often with the small- and well-sounding /i/. Names for friendly, magnificent, potent characters like magicians or druids, cf. *Salamir, Kalakaman, Mandavar, Galdalyn* or *Katana Nipas,* preferably consist of more than two syllables, most of them open, most with the vowel /a/ and very often a closed final syllable.

Foreign or non-humanoid entities, which are not marked as definitely vicious, are called, e.g.*, Mroh, Graan, Teél, Djirahdon* or *Em'neta.* They do not show the typical German word pattern as they contain only full vowels and some combinations on the phonological or graphemic level are highly unusual. Foreign evil creatures, on the other hand, like orcs, demons or vicious, reptilian-like creatures have names such as *Brazoragh, Rok-Gor, Ch'tuon, Xandor, Chrekt-Orn, Rrul′ghargop* or *An-Rukhbar* with many back phonemes, especially velar and uvular fricatives and vowels like /u, o, a/. Furthermore, many syllables contain complex onsets and codas or non-German consonant clusters. Finally, most of the names of beautiful young women end with *a*, cf. *Leriella, Mreja, Misira, Laianna, Mayssa*. Some show a final *i*, cf. *Aioni, Atinui, Sitari*. The authors obviously use some system in naming their heroes.

To find out how far authors' intuitions correlate with those of readers or listeners, 106 native speakers of German were asked via a questionnaire. They were given lists of names, all of them from the books, and had to answer the following questions by rating a name as a very good match (1) up to a name with a very poor match (7).

How appropriate is the name for a
– beautiful young woman?: *Klipp, Alani, Olda, Valeron Veit, Sartassa, Gorx*
– ferocious, ugly, malignant monster?: *Gina, Ch'tuon, Eugalp, Tik, Chrekt-Orn, Ghuzdan*
– small gnome with a high-pitched voice?: *Cromag, Raul Madsen, Krillri, Nana, Cir, Gurlo*
– exotic, kind creature with three legs?: *N'ehetu, Mark Nord, Cara, Gnoorat, Mu'ati, Cir*
– good-natured, powerful magician?: *Rrul'ghargop, Nana, Galdalyn, Cuul, Oderich Finck, Salamir*

As a result (cf. Elsen 2008: 100-102), average ratings for the young woman were *Alani* (1,90)[3], *Sartassa* (2,54), *Valeron Veit,* (4,56), *Olda* (4,58), *Klipp* (5,76), *Gorx,* (6,64). Both best examples were the forms the authors had chosen in the books. Furthermore, there is a clear gap between the two best examples and the following ones. The ratings for the monsters were *Chrekt-Orn* (2,07), *Ghuzdan* (2,32), *Eugalp* (2,87), *Ch'tuon* (2,93), *Tik* (5,27), *Gina* (6,59.) Here, the first four names were monster names in the books. For the gnome, the results were *Krillri* (1,52), *Cir* (1,81), *Gurlo* (3,58), *Cromag* (4,09), *Nana* (4,34) and *Raul Madsen* (5,74). Again, both best examples were names for the target or similar referents and

---

[2] Of course, letters represent sounds. <a> in German is pronounced /a, a/, <i> is pronounced /i, I/, <o> : /o, ɔ/, <u>: /u, ʊ/, stressed <e>: /e, ɛ/, unstressed <e> : schwa (/ə/).

[3] Average value

again there is a gap between these two and the rest. The evaluations of the names for the exotic creatures show yet again that the two correct ones are listed as best, cf. *N'ehetu* (2,21), *Mu'ati* (2,49), *Cir* (3,06), *Gnoorat* (3,35), *Cara* (3,78) and *Mark Nord* (5,58).

Finally, the ratings for the powerful magician show a distinct difference between the two first and correct ones and others, cf. *Galdalyn* (1,56), *Salamir* (1,85), *Cuul* (4,05), *Oderich Finck* (4,10), *Rrul'ghargop* (4,25), *Nana* (5,56).

We see that some names are better for the referents than others. They are not equally well suited. Ratings were not gradual. There is a sudden rise between the ratings of the two correct names and the rest in the case of young women, gnomes and magicians, and between the four correct names and the rest for the monsters. *Klipp, Gorx, Tik, Gina, Raul Madsen, Mark Nord* and *Nana* didn't fit at all, ratings were high: between 5.27 and 6.64. Results for the exotic creatures are not as obvious. The only definite difference is between the last name, *Mark Nord*, and the rest, probably because it sounds like an average human being and thus not exotic. Moreover, all best examples were the names the authors of the stories had chosen for the depicted or similar characters. As the names do not show morphological information, the ranking must be based on phonetic information, represented and accompanied by orthographic clues. Again, participants made use of the sound structure of the words, apart from common knowledge about proper names.

4. **Sound symbolism**
4.1 *Association effects*
These and other studies revealed some systematic correlations between sounds and associations:

- *i* is associated with little, thin, slim, light, pointed things
- *a, o* with the idea of something large, fat, stout, swollen
- long vowels with long, slow movements etc.
- back consonants with something evil, dangerous, aggressive
- *b*, *m*, *l*, *o*, *u* are associated with soft, gentle, round
- voiceless plosives sound hard
- a short syllable with final plosive as well conveys the impression of something hard (Elsen 2016: 226).

However, very often, phonemes work in groups or combinations. This can be seen when analysing languages which are created for fantastic creatures and which should reflect character and emotions of their speakers. Here are some examples of Dark Speech (1) and Klingon (2), both invented for aggressive, barbaric species:

(1) *Ugluk u bagronk sha pushdug Saruman-glob bubhosh skai.*
"Uglúk to the cesspool, sha! the dungfilth; the great Saruman-fool, skai!" (Tolkien 1996: 83)

(2) *tlhIngan Hol yejHaD jInmol chu' 'oH Qo'noS QonoS'e'. tlhIngan Hol jatlhwI'pu'vaD wIcherpu'. naDev vuDmey Daj lutmey Sagh je DalaDlaH, 'ach tlhIngan Hol DayajnIS. Hoch jar chovnatlh chu' wImuch. yIlaD. yIqeq. tugh bIpo'choH.*
"The Kronos Chronicle is a new project of the Klingon Language Institute, intended for Klingon speakers. Here you can read interesting opinions and articles, but only if you can

understand Klingon. Each month we will have a new issue for you to read and practice your skill." (Omniglot)

Black Speech, created by Tolkien for the orks, has many back vowels and hardly any diphthongs. There are many of consonants, especially fricatives and plosives, mostly closed syllables, many clusters. In contrast, elven languages show many sonorants, many front vowels, especially /e, i/, only few /u/, many diphthongs, many open syllables. If closed, syllables preferably end in *r* or *n*. There are only few consonant clusters.

Klingon syllable structure typically is CVC with many dark vowels, no /e/ and no schwa, many consonants, many clusters and many back consonants: <H> /x/, <gh> /ɣ/, <Q> /q͡χ/, <q> /qʰ/, <'> /ʔ/ as well as rare clusters, cf. <tlh> /t͡ɬ/[4]. "The overall sound of Klingonese is harsh, guttural, and forceful" (Conley and Cain 2006: 170). This is realized by the joint effect of many sounds and their combinations within the syllable and throughout sentences and texts.

4.2 *Explanations*

What kind of explanations for sound symbolic effects is possible? Various authors offer articulatory, kinaesthetic, neurological, acoustic and biological reasons.

For example, velar, uvular sounds such as /x, q͡χ, ʔ/ are related to strangling, throttling, retching, and unpleasantness. They show acoustic similarity to bellowing - growling, snarling, grumbling of dangerous animals. We transfer unpleasant or dangerous experiences to these sounds because of a similarity relation between different senses (e.g., Fónagy 1963, Whissell 1999). Another is magnitude symbolism. For *i* and similar sounds the oral cavity is small. The position of the tongue is high. This is felt to be small. For *a, o* the oral cavity is open. The position of the tongue is low (Sapir 1929, Peterfalvi 1965, 1970, Volke 2007).

Another suggestion is directed at multisensory perceptions. This is a neurological explanation. Several authors such as Parise and Spence (2012) can show cross modal associations between auditory and visual stimuli (Parise and Spence 2012: 325). There seems to be intense neuronal communication between regions for seeing and listening, for example auditory pitch and visual size, "between the waveform of auditory stimuli and the roundedness of visual shapes" (ibd.: 326 and cf. Rendall and Owren 2009, further reading Lockwood and Dingemanse 2015).

Last but not least, our experience supplies us with repeated systematic correlations. Large objects cause low sounds (e.g. when hitting the ground), so we link visual and acoustic information. The vocal tract is determined by the size of the skull, this in turn is related to body size. A low larynx results in the lengthening of the vocal tract which leads to lower sounds. So we learn that larger animals, especially mammals, produce lower sounds. Again, we link optical and acoustic information. We know that high acoustic frequencies correlate with high sounds like *i* which indicate small (animals). Low acoustic frequencies correlate with low sounds like *a* or *o* signalling large (animals).

Bands of formants deliver important information on the size of a mammal. The early recognition of large and thus potentially dangerous animals increases the chance of survival. Therefore, knowing about correlations is important. Natural

---

[4] <http://www.frathwiki.com/Klingon>

selection favours sounds, which implicate magnitude. To conclude, whereas low, growling, rough sounds mean animal is large and dangerous, whimpering, whining, high sounds mean that it is frightened and harmless (cf. Ohala 1994, Morton 1994, Fitch 2010).

All together, the natural explanations seem to be multi-causal and mutually interwoven (Elsen 2016).

However, as mentioned, we face the problem of what exactly is sound symbolism. Is it sound carrying meaning, independent of morphology? Or is it a naturally explainable relationship between sound and meaning? Some speech sounds have natural sound symbolic properties, for example in *Brin*, *Tik*. Whereas magnitude symbolism and the effects of velars and uvulars might be universal because of the natural relationship, most phonotactic effects are very probably acquired. Words such as medical names (*Dilcoran*) or names of magicians (*Galdalyn*, *Salamir*) work as a Gestalt. In German ears, they sound efficient, powerful, potent. They resemble Latin or Greek words (Elsen 2016: 145f., 190, 238): several syllables, no reduced vowels, mostly simple onsets, mostly open syllables, the final syllable is closed. Furthermore, in many languages, final *a* besides *i* marks female names, in contrast to final consonants for males (cf. Elsen 2016: 120ff.). Final *a* as opposed to a consonant and Latin-Greek syllable structures can only be taken as acquired information about the language system.

Very probably both aspects, natural/iconic and habitual information, interact. Galdalyn is powerful and friendly. Rrul'ghargop is a huge and terrifying orc-warrior. His name suggests danger because of an accumulation of back phonemes. The danger is imminent, as phonotactics indicate. This danger is lacking in *Galdalyn* because of voiced consonants, especially laterals and a nasal. The name *Racalla* resembles *Galdalyn* phonotactically except for final *a*, and this actually is a female, potent magician.

Conclusion

One of the aims of the present article was to show that there is no doubt about the existence of sound symbolism. Furthermore, we saw that language users take advantage of sound patterns in conveying and interpreting meaning. In consequence, this might form the basis for further research, especially where commercial units are concerned which are created intentionally to support marketing. These proper names are special because they still have to be assigned to a new referent. They operate simply via shape, which helps to pair form and content. Thus, sound structure constitutes an influential dimension of information. Yet the question remains of how far universal and socio-cultural factors interact in interpreting the sound structure of words.

HILKE ELSEN
LMU Munich/Augsburg University

References

ANDERSON Earl R. (1998): *A Grammar of Iconism*, Madison/London, Fairleigh Dickinson Univ press.

AKITA, Kimi (2011): "Toward a phonosemantic definition of iconic words", in MICHELUCCI, Pascal, FISCHER, Olga, LJUNGBERG, Christina (eds.), *Semblance and Signification. Iconicity in Language and Literature* 10, Amsterdam/Philadelphia, John Benjamins, p. 3-18.

BLOOMFIELD Leonard (1909): "A semasiologic differentiation in Germanic secondary ablaut", *Modern Philology*, 7.2, p. 245-288.

— (1910): "A semasiologic differentiation in Germanic secondary ablaut (concluded)", *Modern Philology*, 7.3, p. 345-382.

BLUST Robert (2003): "The phonestheme ŋ- in Austronesian languages", *Oceanic Linguistics*, 42.1, p. 187–212.

BREMNER Andrew J., CAPAROS Serge, DAVIDOFF Jules, DE FOCKERT Jan, LINNELL Karina J. and SPENCE Charles (2013): "'Bouba' and 'kiki' in Namibia? A remote culture make similar shape-sound matches, but different shape-taste matches to Westerners", *Cognition,* 126, p. 165-172.

CHASTAING Maxime (1962): "La brillance des voyelles". *Archivum Linguisticum,* 14, p. 1-13.

— (1964): "Nouvelles recherches sur le symbolisme des voyelles", *Journal de psychologie normale et pathologique,* 61, p. 75-88.

— (1965): "Dernières recherches sur le symbolisme vocalique de la petitesse", *Revue philosophique,* 155, p. 41-56.

CONLEY Tim and CAIN Stephen (2006): *Encyclopedia of Fictional and Fantastic Languages*, Westport/London, Greenwood press.

CRYSTAL David (1996). "Language play and linguistic intervention", *Child Language Teaching and Therapy,* 12.3. 328-344.

ELSEN Hilke (2008): *Phantastische Namen. Die Namen in Science Fiction und Fantasy zwischen Arbitrarität und Wortbildung*, Tübingen, Narr.

— (2016): *Einführung in die Lautsymbolik*, Berlin, Erich Schmidt.

— (2017a): "Lautsymbolik als Verarbeitungshilfe", *Deutsch als Fremdsprache*, 4/2017, p. 231-239.

ERTEL Suitbert (1969): *Psychophonetik. Untersuchungen über Lautsymbolik und Motivation*, Göttingen, Hogrefe.

FISCHER-JØRGENSEN Eli (1978): "On the universal character of phonetic symbolism with special reference to vowels", *Studia Linguistica,* 32.1–2, p. 80-90.

FITCH W. Tecumseh (2010): *The Evolution of Language*, Cambridge, CUP.

FÓNAGY Ivan (1963): *Die Metaphern in der Phonetik. Ein Beitrag zur Entwicklungsgeschichte des wissenschaftlichen Denkens*, The Hague, Mouton.

HANSACK Ernst (2004): "Das Wesen des Namens", in BRENDLER Andrea, BRENDLER Silvio (eds.). *Namenarten und ihre Erforschung*, Hamburg, Baar, p. 51-65.

HEISE David R. (1966): "Sound-meaning correlations among 1.000 English words", *Language and Speech,* 9.1, p. 14–27.

HUANG Yau-Huang, PRATOOMRAJ Sawat and JOHNSON Ronald C. (1969): "Universal magnitude symbolism", *Journal of Verbal Learning and Verbal Behavior,* 8.1, p. 155–156.

IBARRETXE-ANTUÑANO Iraide (2006): *Sound Symbolism and Motion in Basque*, Munich, Lincom.

IMAI, Mutsumi and KITA, Sotaro (2014): "The sound symbolism bootstrapping hypothesis for language acquisition and language evolution", *Philosophical Transactions of the Royal Society B*, 369. 2013.0298, p. 1-13.

IMAI Mutsumi, KITA Sotaro, NAGUMO Miho and OKADA Hiroyuki (2008): "Sound

symbolism facilitates early verb learning", *Cognition,* 109.1, p. 54–65.

IMAI Mutsumi, MIYAZAKI Michiko, YEUNG H. Henny, HIDAKA Shohei, KANTARTZIS Katerina, OKADA Hiroyuki and KITA Sotaro (2015): "Sound symbolism facilitates word learning in 14-months-olds", *PloS One,* 10.2. e0116494.

IVANOVA Gergana (2006): "Sound-symbolic approach to Japanese mimetic words", *Toronto Working Papers in Linguistics,* 26, p. 103–114.

JAKOBSON Roman (1971): "Why ,mama' and ,papa'"? JAKOBSON, Roman. *Selected Writings* I. *Phonological Studies*. Second, expanded edition, The Hague/Paris, de Gruyter Mouton, p. 538–545. (Original 1959).

JAKOBSON Roman and WAUGH Linda R. (1987): *The Sound Shape of Language*, Berlin/New York, Mouton de Gruyter.

JENDRASCHEK Gerd (2002): *Semantische Eigenschaften von Ideophonen im Türkischen*, Munich, Lincom.

JESPERSEN Otto (1933): "Symbolic value of the vowel i", in JESPERSEN Otto, *Linguistica. Selected Papers in English, French and German by Otto Jespersen*, p. 283-303. (Original 1922. Philologica 1)

JOHNSON Ronald C. (1967): "Magnitude symbolism of English words", *Journal of Verbal Learning and Verbal Behavior,* 6, p. 508-511.

KANTARTZIS Katerina, IMAI Mutsumi and KITA Sotaro (2011): "Japanese Sound-Symbolism facilitates word learning in English-speaking children", *Cognitive Science*, 35.3, p. 575-586.

KIM Kong-On (1977): "Sound symbolism in Korean", *Journal of Linguistics*, 13.1, p. 67–75.

KLANK Linda J. K., HUANG Yau-Huang and JOHNSON Ronald C. (1971): "Determinants of success in matching word pairs in tests of phonetic symbolism", *Journal of Verbal Learning and Verbal Behavior,* 10, p. 140-148.

KÖHLER Wolfgang (1929, [6]1947): *Gestalt Psychology. An Introduction to New Concepts in Modern Psychology*, New York/Toronto, Liveright.

LAING Catherine E. (2014): "A phonological analysis of onomatopoeia in early word production", *First Language,* 34.5, p. 387-405.

LEVICKIJ Viktor V. (2013): "Phonetic symbolism in natural languages", *Glottotheory* 4.1, p. 72-91.

LOCKWOOD Gwilym and DINGEMANSE Mark (2015): "Iconicity in the lab: a review of behavioral, developmental, and neuroimaging research into sound-symbolism", *Frontiers in Psychology,* 6:1246, p. 1-14.

LUPYAN Gary and CASASANTO Daniel (2015): "Meaningless words promote meaningful categorization", *Language and Cognition,* 7, p. 167-193.

LYONS John (1977): *Semantics* I, Cambridge/London/New York/Melbourne, CUP.

MORTON Eugene S. (1994): "Sound symbolism and its role in non-human vertebrate communication", in HINTON Leanne, NICHOLS Johanna and OHALA John (eds.), *Sound Symbolism*, Cambridge, CUP, p. 348–365.

MURDOCK George Peter (1959): "Cross-language parallels in parental kin terms". *Anthropological Linguistics*, 1.9, p. 1-5.

NUCKOLLS Janis B. (1999): "The case for sound symbolism", *Annual Review of Anthropology* 28, p. 225-252.

OHALA John J. (1994): "The frequency code underlies the sound-symbolic use of voice pitch", in HINTON Leanne, NICHOLS Johanna and OHALA John (eds.), *Sound Symbolism*, Cambridge, CUP, p. 325-347.

Omniglot. Klingon. www.omniglot.com/conscripts/klingon.htm (consulted January 29, 2018).

OSZMIAŃSKA Aleksandra (2001): "Sound symbolism as a universal drive to associate sound with meaning: A comparison between English and Japanese", *Poznań Studies in*

Contemporary Linguistics, 37, p. 147-155.

PAGET Richard Arthur Surtees (1930): *Human Speech. Some Observations, Experiments, and Conclusions as to the Nature, Origin, Purpose and Possible Improvement of Human Speech*, London, Kegan Paul, Trench, Trubner & Co.

PARISE Cesare V. and SPENCE Charles (2012): "Audiovisual crossmodal correspondences and sound symbolism: A study using the implicit association test", *Experimental Brain Research*, 220, p. 319-333.

PETERFALVI Jean-Michel (1965): "Les recherches expérimentales sur le symbolisme phonétique", *L'année psychologique*, 65.2, p. 439-474.

— (1970): *Recherches expérimentales sur le symbolisme phonétique*, Paris, Centre national de la recherche scientifique.

REAY Irene Elizabeth (1994): "Sound symbolism", in ASHER Ronald E. and SIMPSON J. M. Y. *The Encyclopedia of Language and Linguistics,* 8, Oxford/New York, Pergamon, p. 4064-4070.

RENDALL Drew and OWREN Michael J. (2009): "Vocalizations as tools for influencing the affect and behavior of others", in BRUDZYNSKI, Stefan M. (ed.), *Handbook of Mammalian Vocalization*, Oxford, Academic press, p. 177–185.

SAPIR Edward (1929): "A study in phonetic symbolism", *Journal of Experimental Psychology,* 12, p. 225-239.

SHINOHARA Kazuko and KAWAHARA Shigeto (2010): "A cross-linguistic study of sound symbolism: The image of size", *Proceedings of the Berkeley Linguistic Society* 36, Berkeley (Paper delivered 2010).

TANZ Christine (1971): "Sound symbolism in words relating to proximity and distance", *Language and Speech,* 14.3, p. 266–276.

THOMPSON Patrick D. and ESTES Zachary (2011): "Sound symbolic naming of novel objects is a graded function", *The Quarterly Journal of Experimental Psychology*, 64.12, p. 2392–2404.

THORNDIKE Edward L. (1945): "On Orr's hypotheses concerning the front and back vowels", *The British Journal of Psychology,* 36.1, p. 10–14.

TOLKIEN John R. R. (1996): *The Peoples of Middle-earth. The History of Middle-earth* 12, London, Harper Collins.

TRAUNMÜLLER Hartmut (1996): "Sound symbolism in deictic words", *Quartely Progress and Status Report,* 37.2, p. 147–150.

TSUR Reuven (2006): "Size-sound symbolism revisited", *Journal of Pragmatics,* 38, p. 905–924.

ULTAN Russell (1978): "Size-sound symbolism", in GREENBERG Joseph H., FERGUSON Charles A. and MORAVCSIK Edith A. (eds.), *Universals of Human Language* II. *Phonology*. Stanford, SUP, p. 525–568.

VOLKE Stefan (2007): *Sprachphysiognomik. Grundlagen einer leibphänomenologischen Beschreibung der Lautwahrnehmung*, Freiburg/Munich.

WEHKING Erwin (1984): *Produktnamen für Arzneimittel: Wortbildung, Wortbedeutung, Werbewirksamkeit*, Hamburg, Hamburger Buchagentur.

WESCOTT Roger W. (1980): *Sound and Sense. Linguistic Essays on Phonosemic Subjects*, Lake Bluff, Ill., Jupiter Print.

WHISSELL Cynthia (1999): "Phonosymbolism and the emotional nature of sounds: Evidence of the preferential use of particular phonemes in texts of differing emotional tone", *Perceptual and Motor Skills,* 89 p. 19-48.

WOODWORTH Nancy L. (1991): "Sound symbolism in proximal and distal forms", *Linguistics,* 29, p. 273-299.

YOSHIDA Hanako (2012): "A cross-linguistic study of sound symbolism in children's verb learning", *Journal of Cognition and Development*, 13.2, p. 232-265.